

Cont'd 3
3 a control circuit that supplies the amplifier with an
4 idling current that controls the output power of the
5 amplifier,

6 wherein the control circuit receives an input control
7 voltage and makes the idling current behave so as to follow
8 an exponential function of the input control voltage.

1 2. (Amended) The power amplifier module according to
2 claim 1, wherein the control circuit includes:

3 a circuit that converts the input control voltage into
4 current;

5 a circuit that generates a reference voltage from the
6 current into which the input control voltage has been
7 converted and sets a gradient of voltage that changes in
8 proportion to the input control voltage; and

9 a circuit that converts the voltage into current that
10 changes exponentially relative to the input control
11 voltage.

1 3. (Amended) The power amplifier module according to
2 claim 1, wherein the amplifier is a complex comprising a
3 plurality of stages of amplifiers connected in tandem, and
4 wherein the control circuit is a complex comprising a

*Circuit
suit 17*

5 plurality of circuits that receive the control input
6 voltage in common and supply respective idling currents
7 behaving as aforesaid to the plurality of stages of
8 amplifiers.

1 4. (Amended) The power amplifier module according to
2 claim 3, wherein a common circuit is formed, comprising a
3 circuit that converts the input control voltage into
4 current, a circuit that generates a reference voltage from
5 the current into which the input control voltage has been
6 converted and sets a gradient of voltage that changes in
7 proportion to the input control voltage, and a circuit that
8 converts the voltage into current that changes
9 exponentially relative to the input control voltage, and
10 wherein a plurality of circuits connected to said
11 common circuit supply the respective idling currents to the
12 plurality of stages of amplifiers based on the current that
13 changes exponentially relative to the input control
14 voltage.

1 5. (Amended) A power amplifier module comprising:
2 an amplifier; and

Control circuit

3 a control circuit that supplies the amplifier with an
4 idling current that controls the output power of the
5 amplifier;

6 wherein the control circuit receives an input control
7 voltage and makes the idling current behave so as to
8 exponentially change, relative to the input control
9 voltage,

10 wherein the amplifier is fabricated with GaAsHBTs
11 packaged on a semiconductor integrated circuit including a
12 pair of an input transistor and an output transistor, the
13 input transistor carrying the idling current and forming a
14 current mirror circuit in conjunction with the output
15 transistor, and

16 wherein the control circuit is fabricated with Si
17 transistors or GaAsHBTs packaged on a semiconductor
18 integrated circuit.

1 6. (Amended) A power amplifier module comprising:
2 an amplifier; and
3 a control circuit that supplies the amplifier with an
4 idling current that controls the output power of the
5 amplifier,

Cont'd

6 wherein the control circuit receives an input control
7 voltage and makes the idling current behave so as to
8 exponentially change, relative to the input control
9 voltage,

10 wherein the amplifier is fabricated with SiGeHBTs or
11 Si bipolar transistors packaged on a semiconductor
12 integrated circuit including a pair of an input transistor
13 and an output transistor, the input transistor carrying the
14 idling current and forming a current mirror circuit in
15 conjunction with the output transistor, and

16 wherein the control circuit is fabricated with
17 SiGeHBTs or Si bipolar transistors packaged on a
18 semiconductor integrated circuit.

1 7. (Amended) The power amplifier module according to
2 claim 1,

3 wherein the power amplifier module further includes a
4 circuit that limits the idling current once the input
5 control voltage has reached a predetermined level.

1 8. (Amended) The power amplifier module according to
2 claim 1,

Article 17

3 wherein the power amplifier module further includes a
4 circuit by which a temperature characteristic of the idling
5 current can be set optionally.

Article 18

1 9. (Amended) The power amplifier module according to
2 claim 2,

3 wherein the amplifier is a complex comprising a
4 plurality of stages of amplifiers connected in tandem, and
5 wherein the control circuit is a complex comprising a
6 plurality of circuits that receive the control input
7 voltage in common and supply respective idling currents
8 behaving as aforesaid to the plurality of stages of
9 amplifiers.

1 10. (Amended) The power amplifier module according
2 to claim 9, wherein a common circuit is formed, comprising
3 the circuit that converts the input control voltage into
4 current, the circuit that generates a reference voltage
5 from the current into which the input control voltage has
6 been converted and sets a gradient of voltage that changes
7 in proportion to the input control voltage, and the circuit
8 that converts the voltage into the current that changes
9 exponentially relative to the input control voltage,

Cont'd
Cont'd
10 wherein a plurality of circuits connected to said
11 common circuit supply the respective idling currents to the
12 plurality of stages of amplifiers based on the current that
13 changes exponentially relative to the input control
14 voltage.

A Zhd
1 13. (Amended) The power amplifier module according
2 to claim 3, wherein the power amplifier module further
3 includes a circuit that limits the idling current once the
4 input control voltage has reached a predetermined level.

A B3
Please add the following claims:

1 15. (New) The power amplifier module according to
2 claim 5,
3 wherein the control circuit includes:
4 a circuit that converts the input control voltage into
5 current;
6 a circuit that generates a reference voltage from the
7 current into which the input control voltage has been
8 converted and sets a gradient of voltage that changes in
9 proportion to the input control voltage; and
10 a circuit that converts the voltage into the idling
11 current that changes exponentially.